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## Organisational performance measurement models, also for poverty alleviation

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**Abstract:** In this contribution, organisational performance measurement models are reviewed to determine to what extent they can also be used as an instrument for poverty alleviation. In this paper, we explore the organisational performance models. We start with a review of general performance measurement in private and public sectors and then we focus on performance measures in the water sector. It is concluded that the performance measurement models reviewed can be applied in the water and sanitation sector as well, but it is a challenge to make them pro-poor.

**Keywords:** pro-poor service delivery; drinking water; sanitation; performance measurement models.

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## **1 Organisational performance measurement**

In many countries, performance measurement has been recognised as a key component of good governance and has increasingly played a key role in the management of public services (Lawrence and Laura, 2010). There is agreement in the management and performance evaluation literature that performance is a multi-dimensional construct (Kaplan and Norton, 1992; Moore, 1995; EFQM, 1996). Most performance measurers centre on four aspects: on input measurement where the focus is on resources used to produce products and services; activity measurement focusing on actions taken to produce products; output measurement focusing on volume of products and services produced and outcome measurement focusing on the impact of products and services produced.

Focusing on measuring inputs is based on Weber's (1946) theory about the functioning of bureaucracies. By measuring inputs, managers have firm control over equipment, raw materials, human resources, financial resources, and so on. The attention for measuring performance could also be on activities, including processes, procedures and programs and using for example a 'compliance audit'. Focusing on measuring activities does not tell us much about the quantity or quality of outputs produced or whether the outputs are judged as valuable in the sense of satisfying clients or producing desired social outcomes.

Measuring output is cheaper and gives middle managers feedback and performance targets that are within their control. If managers know what constitutes public value, attention can be directed to those elements that help to improve public value like productivity and efficiency. Output measures look at the level of activity, productivity measures and financial performance measurers. Government organisations are being pushed further to measure performance in the direction of either client satisfaction or outcomes. Observing the current debate on whether to concentrate on measuring output or outcomes in the public sector; the debate is shifting heavily in the direction of measuring outcomes. The reason for this is that an outcome is a direct measure of public value. There are, however, many challenges of measuring public value. Three central ones are being incredibly expensive, unavailability of information, and the measurement needs to be done using broad measurers and over a relatively long time.

There are many models of performance measurement both in the public and private sectors. We shall analyse four models: two with private sector orientation while the other two with public sector orientation. The models are: the European foundation for quality management (*EFQM*), balanced score card (*BSC*), the value chain model and the framework for performance assessment.

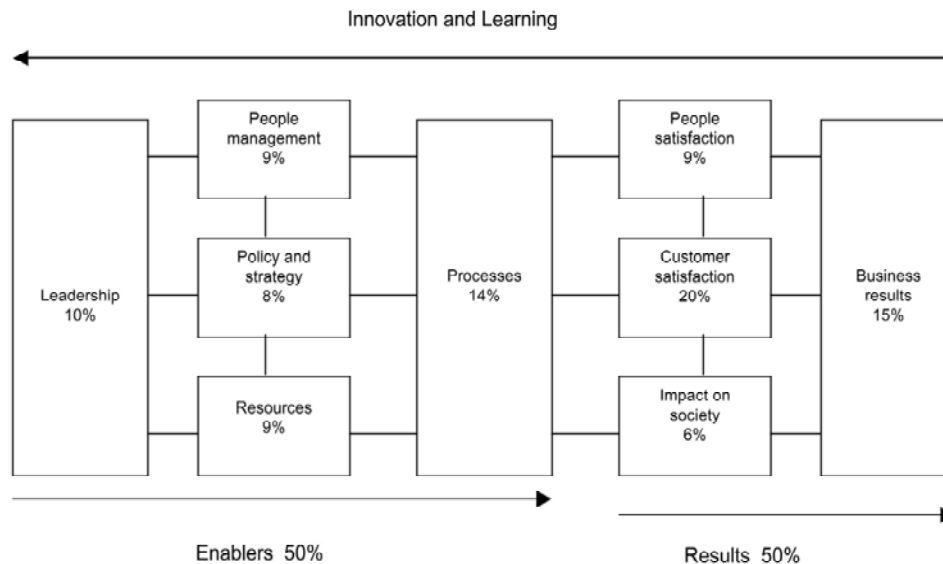
## 2 Performance assessment models with private sector orientation

The EFQM and BSC models of performance measurement attempt to capture the four performance dimensions. Though these models were developed with a private sector inclination, they have been modified to incorporate non-profit organisations. For example in Kaplan's BSC model if used for non-profit organisations, the social mission drives the long-term strategy instead of financial objectives.

### 2.1 EFQM excellence model

The model was developed by EFQM (1996) with a purpose of providing a systems perspective for understanding performance management. The model is a non-prescriptive framework based on nine criteria as shown in Figure 1.

**Figure 1** The EFQM excellence model



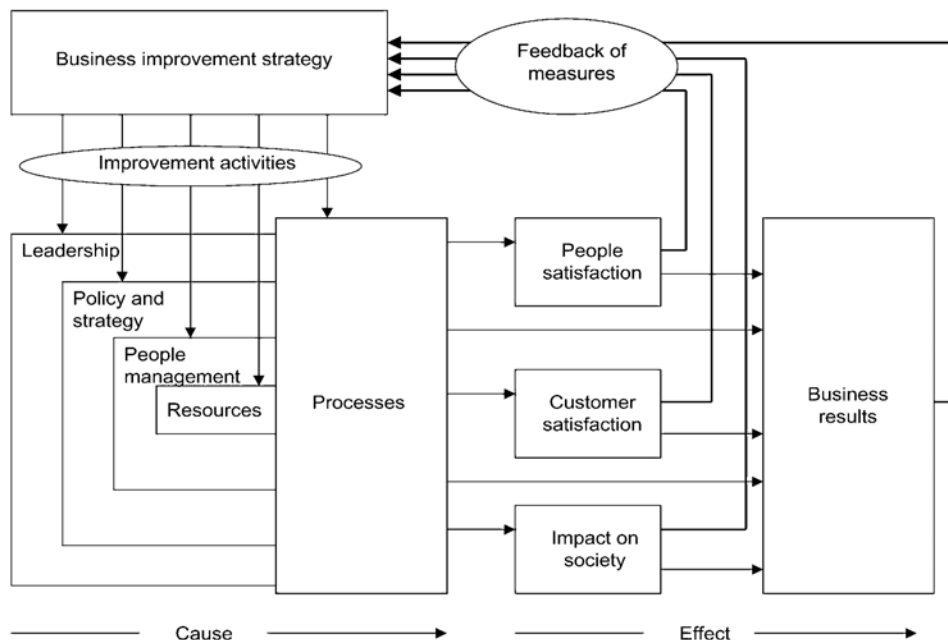
Source: EFQM (1996)

The nine criteria are categorised into two: enablers and results. Five of the criteria “cover what an organisation can manipulate, called ‘enablers’, while the other four represent what an organisation will achieve, named ‘results’” [Wongrassamee et al., (2003), p.17]. The interrelations between these criteria can be summarised as follows. Satisfaction to the customer, people (employees), and to society at large, is the ultimate measure of operational excellence of any organisation (i.e., results). These results can best be achieved through the capacity of the organisations’ leadership to combine sound policy and strategy with good management of people (i.e., its work force) and resources (material and financial) into suitable processes. Each criterion is examined in further detail below.

- *'Enabler' criteria*
  - 1 Leadership  
This criterion focuses on the behaviour of executive team and all other managers in as much as how leaders develop and clarify a statement of vision that proposes total quality and continuous improvement which the organisation and its people can achieve (Wongrassamee et al., 2003).
  - 2 People management  
This is about continuous improvement of the people resources by developing and preserving their skills and capabilities. The major emphasis is on teamwork, effective appraisal, reward and communication, and the involvement of everyone.
  - 3 Policy and strategy  
This reviews the organisation's mission, values, vision, and strategic direction; how the organisation implements its vision and mission based on the concept of total quality and improvement.
  - 4 Resources  
This relates to how the organisation manages and utilises its external partnerships and internal resources (finance, information, materials, application of technology) effectively in order to carry out effective business performance as stated in its mission and strategic plan.
  - 5 Processes  
This concerns management of all value-adding activities within the organisation to satisfy customers and other stakeholders.
- *'Result' criteria*
  - 1 People satisfaction  
This concerns the employees' feelings about their organisation. A total quality approach would seek to satisfy the needs and expectations of its people (employees).
  - 2 Customer satisfaction  
This relates to what the perceptions of external customers are, of the organisation and its products and services. A total quality approach will seek to satisfy the needs and expectations of customers.
  - 3 Impact on society  
This relates to the perception of the organisation within the society as a whole. This would include views about the organisation's approach to quality of life, the environment and preservation of global resources. A total quality approach would progressively satisfy the needs and expectations of the community at large.
  - 4 Business results  
This relates to the achievement of the organisation in relation to its planned business performance goals. This can be broadly categorised into financial and non-financial results.

Though widely adopted, there are serious challenges that the EFQM model poses. Lascelles and Peacock (1996) observe that the model does not give any suggestion on what strategies to be adopted to achieve continuous improvement. Another challenge relates to poor information flow (Lascelles and Peacock, 1996). Though information flow seems to be captured under learning and innovation, it is not well articulated. Lascelles and Peacock (1996) in Figure 2 show how feedback should be articulated between results and enablers.

**Figure 2** Business improvement performance feedback



Source: Lascelles and Peacock (1996)

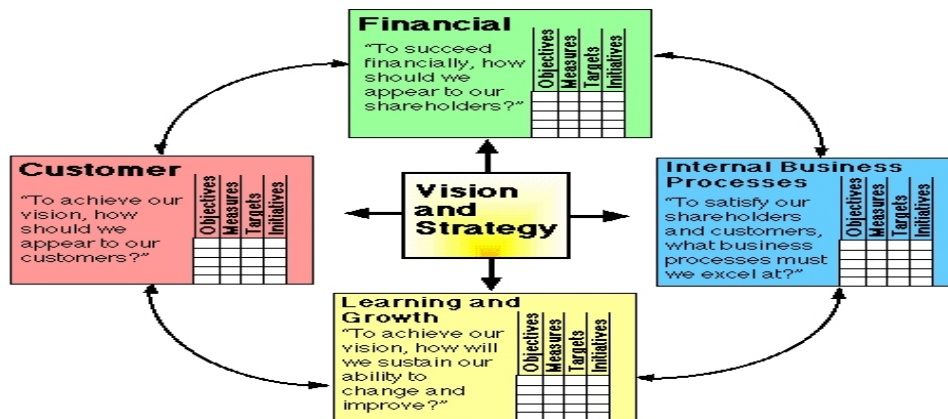
## 2.2 The BSC

Developed by Kaplan and Norton (1992) the BSC has a goal of linking the business unit strategy to the performance measurers selected. The BSC is a performance measurement framework containing a set of four financial and non-financial measures chosen to aid an organisation in implementing its key success factors that are defined in the company's strategic vision (Wongrassamee et al., 2003). The four measurers are financial results, customer satisfaction, internal business process, and learning and growth. The BSC model is shown in Figure 3.

The financial perspective is the traditional approach for assessing organisational performance on top of the profit margins and returns, cost – benefit data and risk assessment have been added to this category. The customer perspective recognises the importance of customer focus and satisfaction. It emphasises the need for analysing the kinds of customers and kinds of processes for which the organisation is providing a product or service to those customer groups. Business process perspective refers to

internal business and strategic management processes. The matrix allows business managers to know how well the organisations are running and whether their products/services conform to customer requirements. Learning and growth includes employee training, corporate cultural attitudes related to both individual and corporate self-improvement. It involves things like mentors and tutors within the organisation, as well as the ease of communication among workers to enable them get help on a problem when is needed.

**Figure 3** The BSC model (see online version for colours)



Source: Kaplan and Norton (1992)

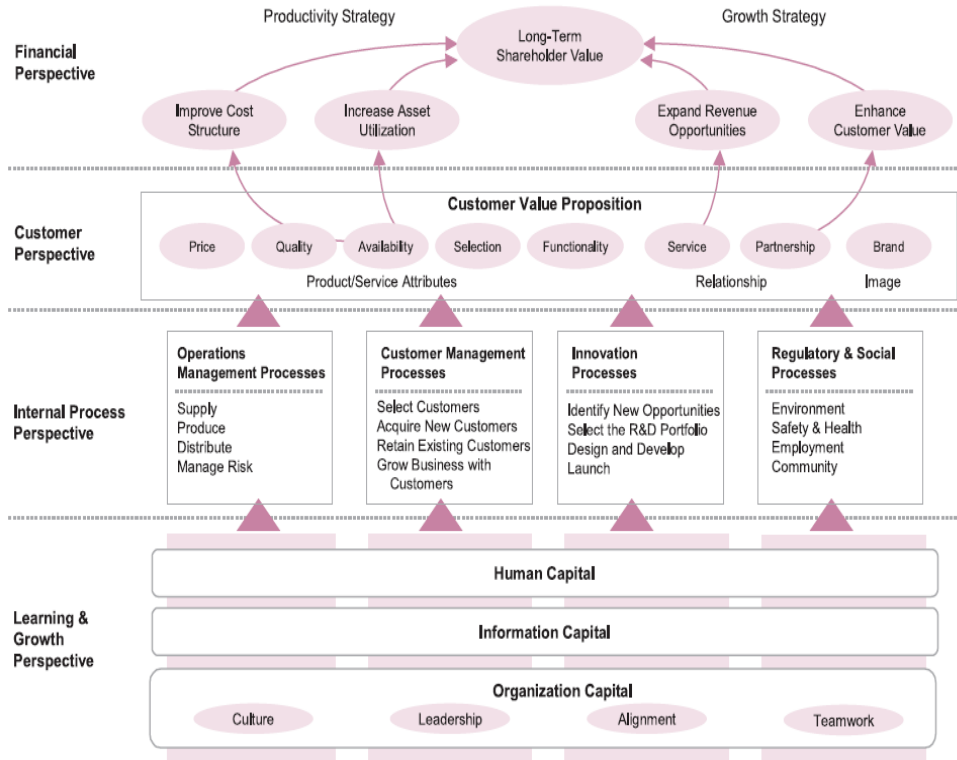
The authors contend that the score card should translate the firm unit's mission and strategy into tangible objectives and measures. There are many normative and empirical studies on implementation of the BSC model. For example, Butler et al. (1997) demonstrates successful adaptation of the model by Rexam Custom Europe.

The BSC model gives four general performance measurers that each organisation should customise to its own requirements. Wongrassamee et al. (2003, p.23) criticise the performance measures given by the BSC model that "there are vague details given concerning how to select the performance metrics to be placed in the scorecard boxes". In response to this, Kaplan (2004) developed a strategy map as shown in Figure 4 to address the challenge of vagueness. Another challenge to the model is the little emphasis it gives to the reward structures. Finally there is still little guidance on how to manage the double-loop learning process in the scorecard literature.

The challenges of the EFQM and BCG models not-with-standing, the models are comparable as shown in Figure 5.

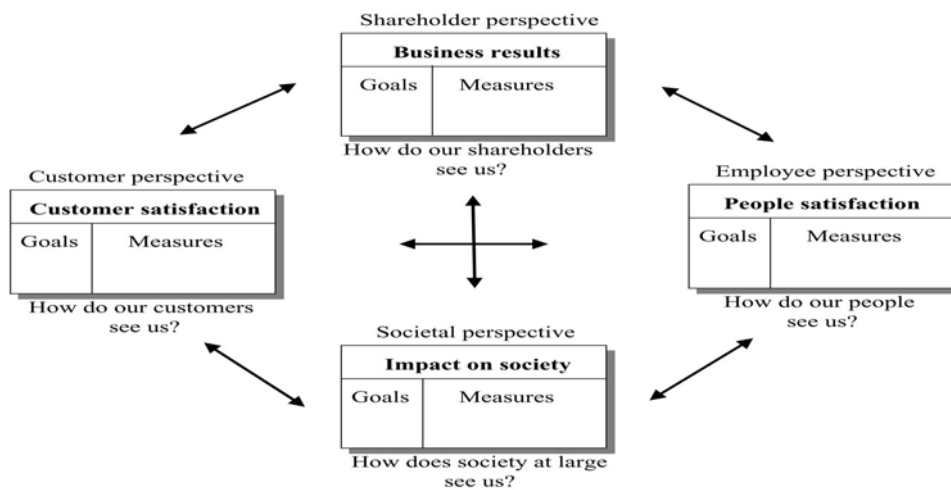
The major difference between the BSC and the EFQM is that the key objectives in the EFQM model are assigned based on the total quality management principles whereas in the score card approach the key objectives are based on desired corporate strategy. Lascelles and Peacock (1996) clearly demonstrate the similarity between the two models. The researchers suggest using the score card to facilitate progress in the result criteria of the EFQM model (i.e., people satisfaction, customer satisfaction, impact on society, and business results) as shown in Figure 5.

**Figure 4** BSC strategy map (see online version for colours)



Source: Kaplan and Norton (2004)

**Figure 5** A BSC of excellence model



Source: Lascelles and Peacock (1996)

### 3 Performance assessment models with public sector orientation

Performance measurement in the public sector has become a major concern for many stakeholders, especially with the ongoing reforms. The concept of public service performance measurement is inherently political and contestable. The performance of public service providers is judged by multiple stakeholders. Each of them uses different criteria to assess the standard of public services and may apply different weights to the same criterion. It follows therefore that there is no fixed and universally applicable set of criteria for evaluating whether improvement occurred.

Preliminary criteria of service improvement can be derived from the literature on the conceptualisation and measurement of organisational performances in the public sector (Carter et al., 1992; Ammons, 2001; Boyne, 2003). Boyne (2003) pointed out that the performance measures focus largely on the quantity and quality of outputs and the level of outcomes.

In the absence of contestable markets, performance information has been seen by stakeholders as a means of assessing service delivery. Key stakeholders are of threefold. Firstly, the service recipients (customers, clients, and users) can use the information to exercise client choice more effectively and ensure transparency and accountability of service providers. Secondly, service providers can make use of performance measures through policy stimulation and promoting benchmark competition for improving performance in areas where there is no competition. The third stakeholder group is government that can use information on performance measurement to set, monitor, and evaluate policies.

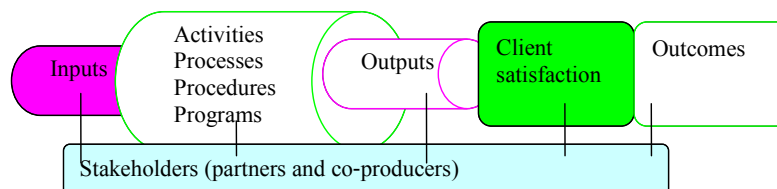
The challenge is that, owing to lack of an active market, it is very difficult to assess the performance of public sector organisations (Wolf, 1993). As a result, inputs are used as a proxy for measuring output (Dollery and Worthington, 1996). Secondly, non-market outputs are usually produced by a single agency often operating as a legally constituted monopoly. Lack of competition makes meaningful estimate of economic efficiency difficult and consequently obscures allocative and productive efficiencies. Thirdly, Wolf (1993) argues that non-market production activity is usually characterised by lack of bottom-line evaluation mechanisms in the appraisal process.

The two performance measurement models we have analysed are the value chain and framework for performance assessment.

#### 3.1 The value chain model for the public sector

Moore (1995) uses the value chain as a model that can be used to identify organisational aspects to measure as shown in Figure 6.

**Figure 6** The value chain (see online version for colours)



Source: Moore (1995)



The general value chain model above describes an organisation that is receiving inputs which are deployed in particular processes, procedures, and programs which produce outputs. Many of those outputs involve an important engagement with clients (people who make individual transactions with the organisation).

Throughout the value chain there are stakeholders (partners and co-producers) who can be instrumental in the production of client satisfaction and social outcomes. Contributions from partners and co-producers could emerge spontaneously without any encouragement or guidance from the organisation. Or, they could emerge as a consequence of deliberate efforts made by the organisation to mobilise co-production activities. The organisation can write contracts with partners or can seek to use moral persuasion of various kinds to motivate private individuals and organisations to contribute to public goals. A firm can even use the authority of the state to require others to contribute to socially desired outcomes.

Moore (1995) explains that performance measurements can be done and accountability demanded at any step along the value chain of partners and co-producers.

### 3.2 *The framework for performance assessment in the public sector*

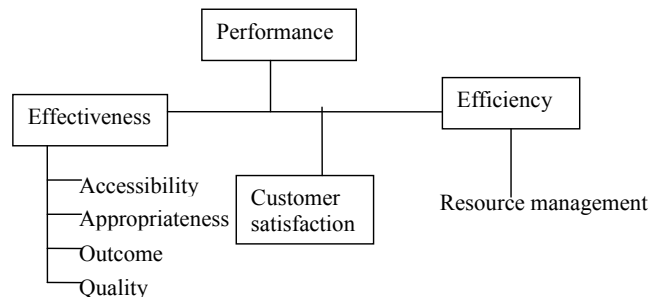
The framework in Figure 7 is based on the premise that in order to analyse performance a set of outcome indicators should be considered collectively. Overall performance is divided into three components:

- 1 efficiency, which describes how well an organisation uses resources in producing services
- 2 customer satisfaction
- 3 effectiveness, the degree to which a system achieves its program and policy objectives.

Effectiveness in turn involves a number of different desired aspects of service linked to program outcome objectives that include:

- a appropriateness (matching service to client needs)
- b accessibility (affordability)
- c quality (meeting required standards).

**Figure 7** Framework for performance assessment in the public sector



Source: Worthington and Dollery (2000) and Ancarani (2009)

The above framework, though comprehensive, has a lot of limitations. Some authors argue that the framework is narrowly focused. For example Carter et al. (1992) add an additional category with exclusive focus on the purchase and provision of services at the lowest possible cost consistent with a specified objective.

Secondly, the framework makes no specific allowance for identifying additional variables relating to efficiency and still the unmeasured concept of effectiveness (Mann, 1986). These 'contextual' variables include environmental characteristics relating to the input/output set and the task environment, individual characteristics such as motivation and incentives and structural characteristics relating to the degree of centralisation and leadership style.

Practically, lack of treatment of contextual information is likely to affect interpretation in different ways. Firstly, organisations may pursue different objectives and this may be important while assessing services designed to local preferences. Secondly the clients of services may differ across jurisdictions. Finally, organisations may face different input prices or operate at different scales.

The framework also creates a problem of performance desegregation yet public sector organisations are multi-dimensional entities and a single measure is unlikely to reflect the complexity of the entity's activities. Furthermore, even when individual measures are combined using some weighting system, the resultant composite measure is ultimately arbitrary, and unlikely to be replicated in any systematic manner.

Despite measurement challenges, general criteria for assessing organisational performance are quantity and quality of outputs, efficiency, equity, outcomes, value for money and customer satisfaction (Moore, 1994; Ancarani, 2009).

#### **4 Water utility performance measurement**

The performance measurement models reviewed are broad and can be applied in different sectors. In the water sector, indicators are commonly used to measure the performance of a water utility. According to International Water Association (Alegre and Helena, 2000) performance indicators are defined as measures of efficiency and effectiveness with regard to specific aspects of the utility's activity and of the systems' behaviour.

Various studies have been conducted in developing and developed countries to assess the performance of water utilities. Empirical applications have been driven by different concerns. Most of the studies have been conducted with the objective of examining the impact of ownership (public vs. private) on performance of water utilities. Some have also been conducted to examine the effect of public regulation on utilities' performance and the effect of the external environment on the utility's performance (Cubbin, 2005; Kirkpatrick et al., 2006; Mugisha, 2006). A common feature of all these studies is that they ignore non-revenue water (NRW) and the level of customer satisfaction as relevant dimensions of the services provide by water utilities.

It is challenging to come up with an assessment criterion that can be used to compare the performance of the different water service providers in Uganda and Tanzania. This is so because the service providers operate in differing circumstances. The circumstances include topography, history of water delivery networks, level of urbanisation, availability of water resources in a specific environment, regulatory framework (Schwartz, 2008).

- The *topography* of a service area greatly influences distribution costs. As already noted, more than half of the total costs per unit of water are incurred at the distribution function (Finn, 2007). The cost of providing portal water in an area which is reasonably flat differs significantly from that of providing water in a hilly area.
- *Level of urbanisation* – During the past three decades, the cities of the developing world in general, and of Africa in particular, have witnessed a remarkable and in many ways unprecedented demographic growth (Gleick, 1993). This high level of urbanisation is coupled with rising levels of urban unemployment and congestion. Providing water services to a congested town or city with poorly planned settlement, with consumers who are unable and at times unwilling to pay, influences the performance of a utility. As the urban population grows, the service provider would need to expand the network at the rate at which the population is growing, yet resources may not allow this.
- *History of water delivery networks* – In the colonial period, whilst the imperial countries were extending public networks in European cities, water supply in the colonies was focused on colonial elite. In places where systems were extended the local population had to pay water charges based on full cost recovery. There were no cross-subsidy benefits; consequently the service was unaffordable to the great majority as in the case of Kampala in Uganda (Nilsson, 2005). Water networks with such historical background highly influence affordability of the service.
- *Regulatory framework* – Water service delivery is highly regulated. There are national laws, policies, and institutional settings that influence the performance of a utility (Larbi, 1999). Commonly, the application of the regulatory framework is manifested in the contracts and nature of communication between the regulating body, service providers and consumers. Such contracts stipulate roles, responsibilities and obligations which in turn affect the performance of the provider.

Clearly, there are external factors that influence the performance of a utility to be borne in mind while assessing the performance of the utility in different contexts.

#### 4.1 *Use of ratios in measuring performance of water utilities*

Simple ratio measurers, such as water delivered per employee and operating costs per connection, are widely used performance measurers. The popularity of these ratio measurers which we call ‘partial productivity measurers’, stems from the fact that they are easy to compute and interpret. However, in many cases these ratio measurers are unreliable indicators of the ‘true productivity’ of the business. For instance a particular firm can have high operating costs per connection because it is poorly managed and wasteful or because of factors outside the immediate control of management, such as

- 1 servicing an area with a low population density
- 2 owning assets which have a high average age and hence require high maintenance costs
- 3 being a small business and hence suffering from diseconomies of scale.

While assessing the performance of 117 public sector water utilities in the USA, Egypt and developing countries, Amr and Khalifa (2006) used financial and operational indicators. The financial indicators used in the study include current ratio, asset turnover, debt to equity, return on sales, return on equity and working ratio; while the operational indicators used include percentage of unaccounted for water (UFW), staff per thousand connections percentage of labour cost and operation cost, and average tariffs. It is these same indicators that were used by a World Bank study while assessing the performance of bank financed water utilities.

Being a partial productivity measure, a ratio measure does not include all the information on the inputs and outputs used by the firm. For instance, it does not include output characteristics related to volumes per connection nor network density, and it ignores capital inputs, such as pipes and pumps. Furthermore, it does not take account of the differences in the size of the business.

Tynan and Kingdom (2002) give five broad categories that can be used to assess a well performing utility.

- a financial sustainability
- b responsiveness to customers
- c accountability to stakeholders
- d efficient and effective capital investment
- e efficient operations and maintenance.

The researchers translate these characteristics into seven performance elements with indicators and targets. The targets were developed basing on their research of 246 water supply and sanitation utilities in 51 countries (developing and developed). Details are given in the Table 1.

**Table 1** Performance categories, indicators and targets

<i>Category</i>	<i>Indicator</i>	<i>Target</i>
Operational efficiency	Staff per 1,000 connections	<5 staff per 1,000 connections
	Staff per 1,000 population served	<0.94 staff per 1,000 served
Financial sustainability	Working capital ratio <sup>1</sup>	<0.68
Commercial performance	Accounts receivables' collection period	<3 month equivalent
Coverage and access	Water coverage	100%
Asset maintenance	Unaccounted for water	<20%
Service quality	Service continuity	24 hrs per day
Price and affordability	Affordability of 20 litres per day	<0.12% of GDP
	Monthly water bill	<6% of household income

Notes: <sup>1</sup>The working ratio is the ratio of operating costs (exclusive of depreciation and interest charges) to operating revenues (which include revenues from water and sewerage tariffs, service charges, connection fees and re-connection fees). The ratio shows the ability of a business to cover its operating costs. Sound financial management requires the working ratio to be well below 1.

*Source:* Tynan and Kingdom (2002)

The above framework is useful in assessing the performance of a water utility. There are some observations though, that ought to be made on the measurers used. First, using the BSC framework, Tynan and Kingdom seem to focus more on financial perspective and less on customer and society perspectives. Secondly, water service delivery has complex and dynamic processes that are not captured in the framework. For instance, maintaining relationships and trust among the different stakeholders, and measuring outcomes in terms of customer satisfaction, poverty alleviation and improved quality of life. Thirdly, as a 'merit good', assessment of the water sector has to consider the long-term perspective which is not well captured by the framework.

Another concern is that some targets seem not to be realistic in the context of the developing world. Considering the performance targets used by NWASCO (2010), Zambia for instance uses a benchmark indicator on coverage of >90 instead of 100%, and benchmark of staff per 1,000 connections of < 5 to 7 instead of <5.

Tynan and Kingdom's validity of the operationalised variables is also subject to question. Tynan and Kingdom (2002, p.1) define operational efficiency as, "the lowest cost use of labour, energy, water and materials in the daily operations of a utility, with the most efficient combination partly dependent on local input prices and prior capital investment decisions". This definition omits other variables like energy, water and other inputs. In Uganda and Tanzania for instance, costs of energy, pipes, chemicals and tools are as critical as the cost of labour.

While assessing the financial and operational performance of Egyptian water utilities, Amr and Khalifa (2006) used various indicators. For instance financial indicators considered included current ratio, asset turnover, debt to equity, return on sales, return on equity and working ratio. The operation indicators considered are UFW, staff productivity, labour cost vs. operating cost and average tariff.

The use of ratios in performance measurement had been criticised as simplistic because they are partial measures and unreliable indicators of the true productivity of a firm.

#### *4.2 Water utility performance measurement chart*

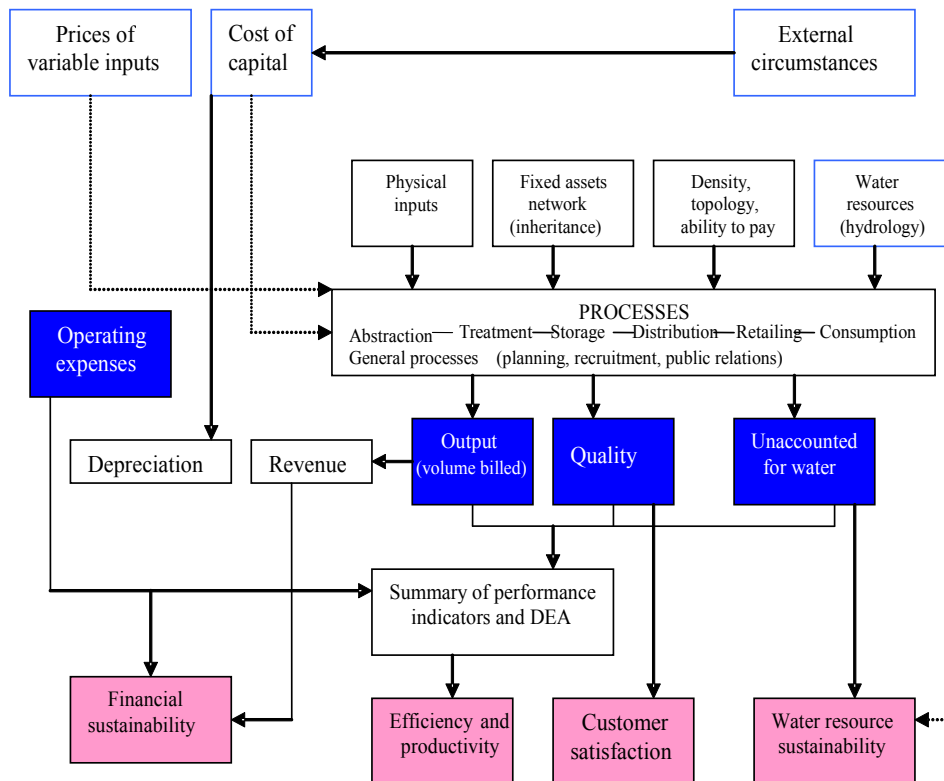
The performance measurement chart in Figure 8 shows how input prices, input levels, and external circumstances enter into the production process. Some variables are under the current management's control (e.g., variable inputs) while others are the result of past managerial decisions. The cost of capital and the prices of variable inputs, determine the total economic cost while analysts sometimes only can identify the determinants of operating expenses. Some factors affecting the production process and associated costs are determined external to the entity (population density, topology of the service territory, and customer ability to pay). Performance scores based on production or cost models need to take such factors into account.

Performance assessments usually emphasise efficiency and productivity using statistical studies, data envelopment analysis (DEA) and ratio analysis. On top of this, the chart shows three other aspects of water sector performance that do not receive enough attention: financial sustainability, customer satisfaction, and water resource sustainability.

To assess financial sustainability one examines revenues and operating expenses and their impact on performance. Key financial ratios are usually studied. Customer satisfaction has been identified as one of the key performance measures for water utilities. Water resource sustainability is another issue that is not given adequate attention

in the analysis of utility performance. There are limitations on how far natural resources can be developed and current scores do not rank utilities on whether their withdrawal and disposal methods are sustainable both in terms of water quantity and quality.

**Figure 8** Water utility performance measurement chart (see online version for colours)



Source: Berg (2007)

Instead, researchers have advocated for using benchmarking and composite performance measures (Yatchew, 2001; van Dijk et al., 2007; De Witte and Marques, 2009).

#### 4.3 Water performance assessment with benchmarking

Performance assessment of the water sector usually focuses on efficiency and productivity gains. This is so because of the non-competitive environment within which the service providers operate. Consequently, the application of benchmarking can be a very important tool in improving efficiency and the quality of services provided (De Witte and Marques, 2009). A recent study by De Witte and Marques (2009) proved that the countries where more benchmarking exercises were being applied registered higher efficiency levels. The idea behind benchmarking is that the results of a given organisation are compared with those of other organisations from the same sector.

A new regulatory paradigm for the public utilities called 'yardstick competition' has been emerging. This emergence is a result of market failure in the water sector and lack of competitive mechanisms to regulate public utilities. The model was first developed by

Shleifer (1985) who presented a system of economic regulation of monopolies. The system was based on cost comparison between entities under the same jurisdiction whereby it is possible to determine the costs level that might be attained by each entity to which corresponds a socially efficient value. Different yardstick competition frameworks, ranging from simple to complex have been used. For example publicising performance results and offering rewards and penalties accordingly. The rewards induce operators to be more efficient and innovative and it enhances information sharing and transparency (Yatchew, 2001).

Many benefits arise from benchmarking and yardstick competition. Even when a simple approach like computation, comparison and publicising of performance, often termed as sunshine regulation, is done, efficiency of water service delivery can be improved (Marques, 2006). Service providers become aware of their performance through the pressure that different stakeholders put on them. For instance, in the Netherlands benchmarking works on the principle of 'naming and shaming' and is closely observed by the Dutch public opinion (van Dijk et al., 2007). The entities with poor performance get 'embarrassed' and as a consequence, tend to correct the discrepancies detected. This triggers positive effects as it introduces positive competition among the operators and leads to a progressive rise of the performance level of the entire sector. In the Netherlands for example, water utilities have been benchmarked since 1997 and there are remarkable results. The efficiency of the water services increased by 21% between 1997 and 2005 (De Witte and Marques, 2009).

De Witte and Marques (2009) note that yardstick competition works where competition is impossible or where its existence is not reasonable, where the main actors have little incentive to reduce the costs, when asymmetric information (moral hazard and adverse selection) exist. The procedure for checking information is very important to the credibility of the entire process. The information must be audited and controlled by a competent and reliable independent authority.

#### *4.3.1 Challenges of benchmarking in the water sector*

Lack of a competitive environment leads benchmarking not to be seen as a powerful management tool but rather as a burden or a threat that will be reflected in the lack of the initiative for benchmarking (Marques, 2006). Thus benchmarking can be introduced by means of regulation.

Another challenge relates to the relationship with customers/citizens which seem to be different from that in the private sector. Given the nature of the water industry, users often have limited options. Users have limited (at times no) comparative references that make it difficult for them to assess the adequacy of service delivery.

Commonly, benchmarking is defined as the continuous search for and adoption of best practices. This assumption, although adequate for large organisations where it was initially developed, can lead to the establishment of unreal objectives with the consequent frustration and lack of motivation to the service providers. It is necessary to be aware of the long way that separates a particular water provider from the best practices, and the choice of benchmarking partners has to be done with caution.

## 5 Conclusions

The PROBE project wants to benchmark utilities and other providers of water and sanitation to find out to what extent they reach the poor. Poor people often do not have a connection to piped drinking water or sewerage and then other actors than utilities may be important. Hence the research that follows also looks at different units of analysis than the utilities: the households, NGOs, CBOs, local governments, neighbourhoods and informal water or sanitation providers, where different approaches may be necessary. Benchmarking exercises are generally not very context and issue specific. The project has taught us that different stakeholders focus on different variables when assessing the impact on the poor consumers. Hence there is space for improvement, but we should learn what makes the system a pro-poor benchmarking system. How can the models be applied as well to non-piped water and sanitation and involve other stakeholders than water utilities?

## References

- Ammons, D. (2001) *Municipal Benchmark. Assessing Local Performance and Establishing Community Standards*, Sage, Thousand Oaks, CA.
- Amr, H. and Khalifa, R.A. (2006) 'Financial and operational performance assessment: water/wastewater Egyptian utilities', *Building Services Engineering Research Technology*, Vol. 27, No. 4, pp.285–295.
- Ancarani, A. (2009) 'Supplier evaluation in local public service: application of a model of value for customer', *Journal of Purchasing & Supply Management*, Vol. 15, No. 1, pp.33–42.
- Berg, S. (2007) 'Conflict resolution: benchmarking water utility performance', *Public Administration and Development*, Vol. 27, pp.1–11.
- Boyne, G.A. (2003) 'Sources of public service improvement: a critical review and research agenda', *Journal of Public Administration Research and Theory*, Vol. 13, No. 3, pp.367–394.
- Butler, A., Letza, S.R. and Neale, B. (1997) 'Linking the balanced scorecard to strategy', *Long Range Planning*, Vol. 30, No. 2, pp.242–253.
- Carter, N., Lein, K. and Day, P. (1992) *How Organizations Measure Success: The Use of Performance Indicators in Government*, Routledge, London.
- Cubbin, J. (2005) 'Efficiency in the water industry', *Utilities Policy*, Vol. 13, No. 4, pp.289–293.
- De Witte, K. and Marques, R. (2009) 'Designing performance incentives, an international benchmark study in the water sector', *Central European Journal of Operations Research*, Vol. 18, No. 2, pp.189–220.
- Dollery, B.E. and Worthington, A.C. (1996) 'The evaluation of public policy: normative economic theories of government failure', *Journal of Interdisciplinary Economics*, Vol. 7, No. 1, pp.27–39.
- EFQM (1996) *Self-Assessment 1996 Guidelines*, Brussels, Belgium.
- Finn, R. (2007) *Competition and Regulation in Water: Striking the Right Balance*, Beesley Lecture, London.
- Gleick, P. (1993) 'Water in the 21st century', in Gleick, P. (Ed.): *Water in Crisis: A Guide to the World's Fresh Water Resources*, Oxford University Press, New York.
- Kaplan, R.S. and Norton, D.P. (1992) 'Putting the balanced scorecard-measures that drive performance', *Harvard Business Review*, January–February, Vol. 70, No. 1, pp.71–79.
- Kaplan, R.S. and Norton, D.P. (2004) 'How the balanced scorecard complements the McKinsey 7-S model', *Strategy and Leadership*, Vol. 33, No. 3, pp.41–46.



- Kirkpatrick, C., Parker, D. and Zhang, Y. (2006) 'An empirical analysis of state and private-sector provision of water services in Africa', *The World Bank Economic Review*, Vol. 20, No. 1, pp.143–163.
- Lascelles, D. and Peacock, R. (1996) *Quality in Action: Self-Assessment for Business Excellence*, McGraw-Hill, Berkshire.
- Lawrence, L.M. and Laura, P.M. (2010) 'Comparative measurement in decentralised systems; the case of Florida Benchmarking Consortium', *International Journal of Public Sector Performance*, Vol. 1, No. 4, pp.376–389.
- Mann, S.Z. (1986) 'The politics of productivity: state and local focus', in M. Holzer and A. Halachmi (Eds.): *Strategic Issues in Public Sector Productivity: The Best of Public Productivity Review*, pp.1975–1985, Jossey-Bass, San Francisco.
- Marques, R. (2006) 'A yardstick competition model for portuguese water and sewerage services regulation', *Utilities Policy*, Vol. 14, No. 3, pp.175–184.
- Moore, M. (1995) *Creating Public Value: Strategic Management in Government*, Harvard University Press, Cambridge, Massachusetts.
- Mugisha, S. (2006) 'Effects of incentive application on technical efficiencies: empirical evidence from Ugandan water utilities', *Utilities Policy*, Vol. 14, No. 4, pp.219–223.
- National Water Supply and Sanitation Council (NWASCO) (2010) [online] <http://www.nwasco.zam>
- Schwartz, K. (2008) 'The new public management: the future for reforms in the African water supply and sanitation sector', *Utilities Policy*, Vol. 16, No. 1, pp.49–58.
- Shleifer, A. (1985) 'A theory of yardstick competition', *Rand Journal of Economics*, Vol. 6, No. 3, pp.319–327.
- Tynan, N. and Kingdom, W. (2002) *Effective Water Service Provision*, Second Draft, World Bank, Washington DC.
- van Dijk, M.P., Schouten, M., Swami, K. and Kooij, M. (2007) 'Country report on the Netherlands in water and liberalisation', in Finger, M., Allouche, J. and Luis Manso, P. (Eds.): *European Water Scenarios*, IWA Publishing.
- Weber, M. (1946) 'Bureaucracy', from Max Weber essays in sociology', in R. Stillman (Ed.): Reprinted in *Public Administration Concepts & Cases*, pp.41–49, Houghton Mifflin Company, Boston.
- Wolf, C. (1993) *Markets or Governments: Choosing Between Imperfect Alternatives*, MIT Press, Cambridge.
- Wongrassamee, S., Gardiner, P.D. and Simmons J.E.L. (2003) 'Performance measurement tools: the balanced scorecard and the EFQM excellence model', *Measuring Business Excellence*, Vol. 7, No. 1, pp.14–29.
- Worthington, A.C. and Dollery, B.E. (2000) 'An empirical survey of frontier efficiency measurement techniques in local governments', *Local Government Studies*, Vol. 26, No. 2, pp.23–62.
- Yatchew, A. (2001) 'Incentives regulation of distributing utilities using yardstick competition', *The Electricity Journal*, Vol. 14, No. 1, pp.56–60.